

OKLAHOMA
AGRICULTURAL EXPERIMENT
STATION
STILLWATER, OKLAHOMA

CIRCULAR OF INFORMATION NO. 13

SELECTING AN ORCHARD SITE

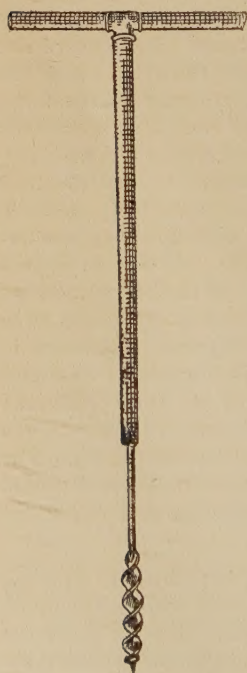
This is the most important point connected with the planting of an orchard. Failures to raise fruits successfully are more frequently due to bad orchard sites than to any other one cause. By orchard site it is not meant to refer to the locality or neighborhood in which the orchard is planted but to the specific location, the part of the farm, the hilltop, hillside or valley, as the case may be. Neighborhoods vary very much in the number of good orchard sites they may furnish. There are occasional sections where practically all of the land is well adapted to orchard trees. These are the rare fruit sections. In such places it will generally be found that fruit growing has replaced general farming as being more profitable. At the other extreme there are those localities where none of the land is adapted to fruit growing. Neighborhoods in which the land is generally of a swampy nature usually belong to this class. There are localities in which the planting of an orchard in any place is a waste of time and trees. In neighborhoods which fall into either of these divisions knowledge is not necessary in order to select an orchard site. In the one case all are good and in the other case all are worthless. The great bulk of the country, however, falls into an intermediate division, part of the land being suitable for orchard planting and a portion unsuitable.

The character of the surface soil appears to have little or nothing to do with making good tree land. Good orchards will be found on all kinds of soils, from dense clays to light sands. It is certainly not due to the richness of the soil, for many of the best orchard sections of the United States have thin soils which require constant feeding. In fact there is only one thing which is found constantly associated with good orchard land, and that is an open porous subsoil. The adaptability of land for tree growth is shown by the character of the soil from one to six feet below the surface. If the land is satisfactory

for four feet down, usually this is deep enough for satisfactory tree growth, although six is better.

The average farmer knows but little about his land below the bottom of the furrow made by the plow, so that he is frequently but little better fitted to say where his trees should be planted than some one who has never seen the land.

There are many ways of becoming acquainted with the subsoil. One of the best is by the use of a spade. The digging of a few holes five or six feet deep in different parts of the farm will reveal an astonishing amount of information as to the character of the subsoil. The number of holes necessary to give satisfactory information as to the character of the underlying strata will vary. If it be found that half a dozen holes dug in a certain five or ten acre tract give practically



the same result in each case, it may usually be assumed that these indicate the general character of the subsoil. If, on the other hand, the verdict is variable, more holes will have to be dug until the limits of the different formations are shown. Where neither rocks nor stones are present this work may be done more quickly and quite as satisfactorily with a ground auger as with a spade. A home-made auger is usually quite as satisfactory for this purpose as the more expensive article purchased on the market. Take an old inch and a half or two inch wood auger and have the local blacksmith weld it to the end of a six foot length of three-quarter inch pipe or half-inch wrought iron rod. The welding of a short cross piece at the top completes the device. The figure shows an auger of this pattern which has been used with satisfaction in the fields around Stillwater.

An open porous subsoil insures drainage and thus promotes the establishment of deep feeding roots. Trees with such root systems are not subject to the vicissitudes of varying seasons to the same extent as those of a shallower root system. There is a popular supposition that the root system of a plant is of approximately the same shape as the trunk and branch system above, the taller plants having the deeper roots, etc. If this were true it would mean that trees would have deeper roots than shrubs or herbaceous plants. This appears to be a popular fallacy. No definite rule can be established, for the depth of the roots of different plants varies with the character of the soil. In dense soils the grass roots, including the clovers, generally show a much greater capacity for going down

than tree roots. The writer has repeatedly found in digging in clay apple orchards, seeded down to clover, that the clover roots would penetrate from five to six feet below the surface when none of the tree roots would be deeper than two and a half to three feet. The

capacity to penetrate impervious subsoils does not depend on the boring power of the root tip. All roots have a boring power which is quite sufficient to force their way down in any ordinary subsoil. The reason for the absence of roots is that they are unable to live in the denser soil, owing to the lack of the necessary air. Thus it will be found that a soft mucky subsoil is quite as efficient a barrier to root growth as solid rock.

While the above statements are true generally of all fruit trees, there are differences in the different kinds of fruit. Thus peaches head the list of trees which demand well drained deep soil. The peach districts of the United States are largely thin, sandy lands. Our native plums probably come next in desiring light open soil and subsoil. It is rather difficult to classify them, owing to their belonging to different species with different requirements. Apples come next, then pears, and lastly European plums. As these last can not be generally raised successfully in the middle west they are of little interest to Oklahoma fruit growers. Cherries are quite adaptable in the matter of subsoil, but all the districts in which cherries are markedly successful have light open subsoils.

Grapes stand in a class by themselves. Our native grapes grow largely by streams and in damp, poorly drained locations. However, practically all of our cultivated grapes are of New England species or of mixed New England and European species. They all demand deep open soil.

Besides the subsoil, air drainage seems to be a factor in determining successful orchard sites. The exact part which currents of air play in orchard economy is not thoroughly understood. It appears to be most important in the case of peaches and grapes. Its importance in the case of peaches is largely, if not wholly, due to the effect it has on frosts. Frosts are much more common in small valleys or pockets in the land than they are on hilltops or hillsides. At one time the writer had his attention called to two peach orchards on the Pacific coast. They were located in one of the fruit valleys of that region and were in adjoining fields. The varieties were the same, but one of the orchards was located on a flat about fifteen feet higher than the flat on which the other was located. The upper orchard had been profitable from the time it began to bear, while the other orchard had always been unprofitable. Nearly every year a late spring frost would kill the blossoms on the lower orchard, while the upper one would escape. So great a difference in results with so slight a difference in altitude is rare, but the rule is general that the higher the orchard the better the chance of its escaping either midwinter or spring injury. In the case of grapes the benefit of air drainage appears to be largely due to the aid it gives the plant in resisting fungous diseases, particularly black rot.

So far the only things that have been considered in locating the orchard have been those connected with the welfare of the trees. There are others, however, which should have due consideration. One of these is convenience to the house. When the plantings are for home use chiefly, proximity to the house is very important. This is

particularly true of summer fruits. A few cherry trees in the yard will frequently be of use when a hundred half way across the farm would never be picked. Another advantage in having the fruit nearby is the protection it affords from pilfering. The importance of this depends on the neighborhood. It is an unfortunate fact that the code of ethics of the average American is faulty in this particular. To most residents of Oklahoma, stealing corn would brand a man as a thief, while stealing apples would be regarded as something of a joke. In some neighborhoods this mental attitude renders it very unwise to plant fruit far from the home. This is particularly true in the vicinity of large towns. One of the advantages of raising fruit in fruit-growing communities is that the loss from theft is less. The depredations are not only distributed, but they are less frequent. When people have fruit of their own, robbing an orchard has a different complexion than the same action when it is some neighbor who has the fruit.

One mistake that should always be avoided in locating an orchard is that of considering the value of the land. Never think that a field is so valuable for corn or wheat that you cannot afford to plant it to fruit trees. Whether it be for home use or for market, acre for acre, fruit will pay more profit than any grain. This is indicated by the fact that in the fruit raising sections land commands a higher price than in the best grain growing districts.

N. O. BOOTH.